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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,488	02/17/2004	Steven G. Goebel	GP-304183	1553

7590 02/21/2008
CARY W. BROOKS
General Motors Corporation
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Detroit, MI 48265-3000

EXAMINER

HODGE, ROBERT W

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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02/21/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/780,488	Applicant(s) GOEBEL, STEVEN G.	
	Examiner ROBERT HODGE	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 1-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/29/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/29/07 has been entered.

Response to Arguments

Applicant's arguments, see Remarks, filed 11/29/07, with respect to the rejection of claim 18 under 35 U.S.C. 112, 2nd Paragraph and claims 18-25, 28 and 29 under 35 U.S.C 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of U.S. Patent No. 6,984,464.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 18-24 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S.

Patent No. 6,984,464 hereinafter Margiott.

Regarding claim 18, in figure 1 Margiott teaches a method of operating a fuel cell system 10 comprising configuring the fuel cell system 10 to include at least one fuel cell 12 comprising an anode 14, a cathode 16 and a membrane 18 disposed between the anode and cathode (column 4, line 53), an anode flowpath 24, configured to couple the anode to a fuel source 54, a cathode flowpath 38 configured to couple the cathode to an oxygen source 58, said cathode flowpath including a recirculation loop 70, a means for selectively introducing fuel into said recirculation loop (column 6, lines 25-48), means for selectively reacting fuel with oxygen in said recirculation loop (as defined by applicants said means for reacting fuel with oxygen in the recirculation loop can be the cathode and since the cathode 16 of Margiott is part of the recirculation loop it reads on said recitation) and anode purge flow path configured to selectively couple said recirculation loop to said anode (there is a conduit connecting 24 to 38 (not labeled) that reads on the anode purge flowpath as recited in claim 18). Margiott further teaches that at least two modes of operation may be selected, the first being starting up the system (column 3, lines 47-53) and the second being shutting down the system (column 7, lines 47 et seq.), that fluid is recycled in the cathode flowpath (column 5, lines 19 et seq.), that fuel introduced through said fuel introduction means is reacted with oxygen in the recycled fuel until a voltage measured across said fuel cell reaches a predetermined level that is

commensurate with a substantial consumption of said oxygen in said recirculation loop and then the reaction is discontinued by disabling a least one of the selective reacting means (column 9, lines 7 et seq.) and fluid is introduced into at least one of said anode or said cathode such that any fluid previously resident therein is substantially purged (column 9, lines 30 et seq.).

Regarding claim 19, Margiott teaches that the anode purge flowpath comprises a purge valve 64.

Regarding claim 20, Margiott teaches selecting said first mode of operation (column 3, lines 47-53)

Regarding claim 21, Margiott teaches filling said anode with fuel after said reacting has been discontinued (column 9, lines 30 et seq.).

Regarding claim 22, Margiott teaches flowing air through said cathode while the anode is filled with fuel (i.e. normal operation of the fuel cell) (column 5, lines 19 et seq.).

Regarding claim 23, Margiott teaches that the cathode recirculation loop may be disabled (column 7, lines 27-37).

Regarding claim 24, Margiott teaches selecting said second mode of operation (column 7, lines 47 et seq.).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Margiott in view of U.S. Pre-Grant Publication No. 2002/0076583 hereinafter Reiser.

Margiott as discussed above is incorporated herein.

Regarding claim 25, Margiott further teaches introducing a substantially oxygen-depleted fluid into the anode (i.e. a fuel stream containing hydrogen) (column 5, lines 58 et seq.)

Margiott does not teach that the fluid comes from the cathode flowpath.

In figure 1 Reiser teaches a fuel cell system 100 wherein a conduit 182 is provided from the cathode flow path 124 to the anode flow path 130 to provide air to the anode from the oxygen source (paragraph [0014]).

At the time of the invention it would have been obvious to a person having ordinary skill in the art to provide a conduit connecting the cathode flow path to the anode flowpath of Margiott as taught by Reiser in order to displace the hydrogen quickly thereby reducing the time that platinum and carbon corrosion will occur thus increasing the overall life of the fuel cell.

Regarding claim 26, Margiott teaches a valve 52 in the anode flowpath that can be selectively opened or closed, thus decoupling the anode from the fuel source (column 5, lines 58-62).

Regarding claim 27, Margiott teaches valves 71 and 56 in the cathode flowpath that can selectively be opened or closed thus stopping fluid flow within the cathode flowpath (column 5, line 64 - column 6, line 7, and column 7, lines 31 et seq.).

Regarding claims 28 and 29, Margiott as modified by Reiser as discussed above is incorporated herein.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT HODGE whose telephone number is (571)272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. H./
Examiner, Art Unit 1795

/Jonathan Crepeau/
Primary Examiner, Art Unit 1795